Remarks

After the foregoing amendment, claims 1 – 11 and 21 – 25 are pending, with claims 1, 9, 21, and 23 being the independent claims. New claims 23 – 25 have been added. The Examiner's maintenance of the restriction requirement for claims 13 – 15 is acknowledged and those claims have been canceled.

35 USC §102(e)

Claims 1 – 11 and 21 – 22 stand rejected under section 102(e) as being anticipated by U.S. Patent No. 6,711,283 ("Soenksen"). The Soenksen reference is directed toward a revolutionary line scanning system that employs a line scan camera to capture digital images and create a virtual slide. This system is currently being marketed under the name ScanScope® and was introduced by Aperio Technologies, Inc. – the assignee of the present patent application. If was the introduction of this superior line scanning system that created the need for new systems and methods for analyzing the content of the digital images created by the revolutionary ScanScope®.

The claims of the present patent application are directed toward those new systems and methods and in particular toward computer implemented systems and methods for analyzing the content of digital images. It is important to note that the Soenksen reference is directed toward the ScanScope® system that creates the virtual slide digital image while the present application is directed toward systems and methods for working with a virtual slide digital image after it has been created. The Soenksen reference, which teaches the revolutionary line scanning system, and is identified in paragraph 5 of the present application, does not teach the invention claimed in the present application.

For example, independent claim 1 requires a data storage area comprising a plurality of digital images. These are the digital images / virtual slides that are created by the ScanScope® as described by the Soenksen reference. Applicant has amended independent claim 1 to clarify that the invention is directed toward a computer implemented system for analyzing the content of a digital image and that such analysis does not modify the content of the digital image. Soenksen does not teach the claimed invention as amended and specifically does not describe an image handler or an execution manager.

Specifically, the Examiner cites column 20, lines 29 – 64 as disclosing an image handler configured to obtain a portion of a digital image from the data storage area. This passage, however, describes how the ScanScope® captures individual strips and combines them in an overlapping fashion to create the virtual slide digital image, which is then compressed. Accordingly, the cited passage does not disclose an image handler that obtains a portion of the digital image from a data storage area, but rather teaches how scanned imagery data is assembled into a contiguous image.

Additionally, the Examiner cites column 12, lines 26 – 58 as disclosing an execution manager configured to execute the image processing algorithm instructions on the digital image obtained by the image handler. Applicant has amended this element to more accurately describe the function of the execution manager. The cited passage merely teaches a data processor (i.e., central processing unit) of a conventional computer. The passage states even further that the disclosed data processor can be based on any operating system. Thus, the generic CPU disclosed by Soenksen does not teach the execution manager of the claimed invention that is configured to execute the image processing algorithm instructions to analyze the content of the digital image obtained by the image handler.

Accordingly, because the prior art does not disclose the claimed image handler or the claimed execution manager, Applicant respectfully submits that independent claim 1 and its respective dependent claims are presently in condition for allowance and a notice of allowance is respectfully requested.

Moreover, dependent claims 4 – 8 are also not taught by the Soenksen reference. With respect to claim 4, Soenksen does not teach that an image processing algorithm comprises a plurality of subroutines. With respect to claim 5, Soenksen does not teach that the execution manager receives at least a portion of the plurality of subroutines via a data communication network. Even if the Examiner maintains that the various functions of a program correspond to different subroutines, the Soenksen reference does not disclose a program that is made up of the combination of a plurality of subroutines received via a network and a plurality of subroutines retrieved from storage, as set forth in claim 6. Applicant has amended independent claim 1 to clarify that an image processing algorithm is for analyzing the content of a digital image and does not modify or otherwise manipulate or change the content of the digital image. Accordingly, image magnification would not

be an image processing algorithm, while counting the number of cancerous cells in the virtual slide would be an image processing algorithm.

With respect to claim 7, Soenksen does not teach that the execution manager receives a plurality of parameters that define a sub-region of the digital image being analyzed. With respect to claim 8, Soenksen also does not teach that the execution manager receives a plurality of parameters that control the execution of the image processing algorithm instructions.

Turning to independent claim 9, the Soenksen reference discloses the revolutionary line scanning system for creating a virtual slide digital image. It does not teach or disclose a method that includes the steps of receiving an image selection that uniquely identifies a digital image and receiving an algorithm selection that uniquely identifies a set of image processing instructions and receiving a set of image processing parameters and then executing the set of image processing instructions according to the set of parameters. To the contrary, the Soenksen reference teaches the scanning and creation of a virtual slide digital image. Claim 9 has also been amended to clarify that the image processing instructions carry out an analysis of the content of a digital image without modifying the image.

Furthermore, Soenksen does not teach that the set of image processing parameters control the execution of the image processing instructions as required by claim 10 and also does not teach the set of image processing parameters defines a sub-region of the selected digital image, as required by claim 11. Accordingly, Applicant respectfully submits that claims 9 – 11 are presently in condition for allowance and a notice of allowance is requested.

Similarly, independent claim 21 is not taught by the Soenksen reference. Claim 21 has been amended to clarify that the image processing instructions carry out an analysis of the content of the digital image and do not modify the content of the digital image. The Soenksen reference does not disclose executing an image analysis algorithm on first and second sub-regions of a digital image and combining the results into an analysis of the digital image. The cited reference further does not disclose analyzing an entire digital sub-region by sub-region, as required by claim 22. Accordingly, Applicant respectfully submits that claims 21 and 22 are presently in condition for allowance and a notice of allowance is requested.

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22 Aug 2005 Reply to
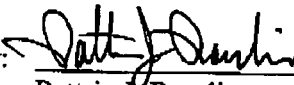21 Apr 2005 Office Action

New Claims 23 – 25

New independent claim 23 and dependent claims 24 and 25 have been added to claim a further embodiment of what Applicant considers to be the elected invention. Independent claim 23 is directed toward a computer implemented method for analyzing the content of a digital image by executing of an image processing algorithm. The steps in claim 23 are not disclosed by the prior art. Accordingly, Applicant asserts that claims 23 – 25 are presently in condition for allowance and a notice of allowance is respectfully requested.

Conclusion

If the Examiner has any questions or comments regarding the above Amendments and Remarks, the Examiner is respectfully urged to contact the undersigned at the number listed below.

Respectfully submitted,
Procopio, Cory, Hargreaves & Savitch LLP

Dated: <u>August 22, 2005</u>   By: _____

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